

112050 SBN  
2001-01-23

14

CLAIMS:

1. A method for obtaining a catalytically active mixture based on stable nitroxyl radicals characterized in that the stable nitroxyl radicals are hydrophobic and are selectively separated from a reaction mixture by means of hydrophobic interactions.
2. A method according to claim 1, wherein the reaction mixture consists of a liquid solution.
3. A method according to claim 1 or 2, wherein the hydrophobic interaction is an adsorption reaction wherein the stable hydrophobic nitroxyl radicals are selectively adsorbed onto a solid adsorbent exhibiting hydrophobicity.
4. A method according to claim 3, wherein the adsorbent consists of a hydrophobic synthetic resin.
5. A method according to claim 4, wherein the hydrophobic synthetic resin is selected from the group XAD-2, XAD-4, XAD-8, XAD-11, XAD-16, XAD-30, XAD-1180.
6. A method according to claim 1 or 2, wherein the hydrophobic interaction is an adsorption reaction wherein the stable hydrophobic nitroxyl radicals are selectively adsorbed onto a silica gel.
7. A method according to claim 3 or 6, wherein the said stable hydrophobic nitroxyl radical is eluted with a solvent, said solvent comprising water, an organic solvent or a mixture thereof.
8. A method according to claim 7, wherein the said organic solvent comprises ethylalcohol, acetone or THF, or a mixture of two or more of said solvents.

9. A method according to claim 7 or 8, wherein the said organic solvent is miscible with water.

5 10. A method according to claim 9, wherein the said organic solvent exhibits a high vapour pressure.

11. A method according to claim 7, wherein the organic solvent comprises 1-pentanol.

10

12. A method according to claim 1 or 2, wherein the hydrophobic interaction takes place in a precipitation step.

13. A method according to claim 12, wherein the precipitate is obtained by  
15  $\beta$ -cyclodextrin selectively forming complexes with the stable hydrophobic nitroxyl radicals.

14. A method according to claim 1 or 2, wherein the hydrophobic interaction takes place in a liquid-liquid extraction step, wherein an organic solvent is  
20 added to the reaction mixture, and into which organic solvent the stable hydrophobic nitroxyl radicals are selectively transferred.

15. A method according to claim 14, wherein the organic solvent comprises alcohols with  $C_6$  or higher.

25

16. A method according to claim 15, wherein the organic solvent comprises 1-octanol.

17. A method according to any one of the preceding claims, wherein the  
30 method is used in a continuous process for re-circulating stable hydrophobic nitroxyl radicals.

16

18. A method according to claim 16, wherein the process comprises selective oxidation of primary alcohols.

19. A method according to any one of the preceding claims, wherein the  
5 stable hydrophobic nitroxyl radical is TEMPO.

20. A method according to any one of the preceding claims, wherein the reaction mixture constitutes an aqueous solution or an aqueous suspension.